

DRAFT
Procurement Language to
Acquire Geospatial Data

The purpose of this document is to provide guidance on procuring geospatial data to ensure that data is collected consistently throughout the Corps in concert with Federal activities. The intent to provide guidance on acquiring federal geospatial data consistent with Federal Geographic Data Committee (FGDC) standards and activities. Geospatial data is defined as data referenced, either directly or indirectly, to a location on the earth. While Hydrographic Survey data is considered geospatial data it will not be specifically addressed, because of the extensive guidance that already exists (see Chapter 16 of Hydro Manual).

While the topics/concepts outlined here apply to all geospatial data, language provided is meant as an example. The Contracting Office Technical Representative (COTR) needs to consider the purpose of the data collection and tailor example language to reflect the specific data collection activity. The examples provided are meant to augment the contract verbiage and are not comprehensive. Geospatial data collection contracts should always reflect the purpose of the data collection activity. Need to be smart about this and take into consideration first and for most the purpose of the data collection activity when writing a contract – not all geospatial data collection activities are equal –data analysis, mapping, image acquisition, etc.

Background Information

1. Introduction

Over the past few years, there have been many changes in the way the Federal Government procures technology. Many of these changed affected and continue to affect the procurement of geospatial information and geospatial processing capabilities. The following forces have driven these changes:

- a. The need to move away from expensive and difficult-to-maintain unique solutions, and toward Commercial-Off-The-Shelf (COTS) and Standards-based COTS (SCOTS) for reasons of lower life cycle costs, and upward compatibility with future generations of software in the commercial mainstream.
- b. The need to share information between components of the Government, and corresponding needs to conform to existing and emerging standards for the discovery and access of geospatial information, and standards for the representation and labeling of geospatial features and relationships.
- c. The need to enable the US information-based economy based on geospatial information and services, by providing an information technology infrastructure that supports such an economy.
- d. The need to eliminate the necessity for development or maintenance of separate Government-unique standards
- e. The need to implement the recommendations of the National Performance Review

- f. The need to advance the goals of the National Information Infrastructure.
- g. The need to avoid wasteful duplication of effort and to promote effective economic management of resources by Federal, State, local, and tribal governments.

2. US Policy on Information Systems and Spatial Data

The US policy on spatial data is set forth in three Office of Management and Budget Circulars (OMB A16, OMB A119 and OMB A130) and by presidential Executive Order 12906.

A. OMB Circular A16

OMB Circular A16 describes the responsibilities of Federal agencies with respect to coordination of those Federal surveying, mapping, and related spatial data activities described below. Spatial data are geographically referenced features that are described by geographic positions and attributes in an analog and/or computer-readable (digital form.)

A major objective of this Circular is the eventual development of a national digital spatial information resource, with the involvement of Federal, State, and local governments, and the private sector. This national information resource, linked by criteria and standards, will enable sharing and efficient transfer of spatial data between producers and users. Enhanced coordination will build information partnerships among government institutions and the public and private sectors, avoiding wasteful duplication of effort and ensuring effective and economical management of information resources in meeting essential user requirements.

The coordinating procedures established by this Circular extend to all activities financed in whole or in part by Federal funds.

B. OMB Circular A119

OMB Circular A119 concerns federal participation in the development and use of voluntary consensus standards and in conformity assessment activities. This Circular establishes policies to improve the internal management of the Executive Branch. This Circular directs agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. It also provides guidance for agencies participating in voluntary consensus standards bodies and describes procedures for satisfying the reporting requirements in the Act. The policies in this Circular are intended to reduce to a minimum the reliance by agencies on government-unique standards.

Many voluntary consensus standards are appropriate or adaptable for the Government's purposes. The use of such standards, whenever practicable and appropriate, is intended to achieve the following goals:

- a. Eliminate the cost to the Government of developing its own standards and decrease the cost of goods procured and the burden of complying with agency regulation.
- b. Provide incentives and opportunities to establish standards that serve national needs.
- c. Encourage long-term growth for U.S. enterprises and promote efficiency and economic competition through harmonization of standards.
- d. Further the policy of reliance upon the private sector to supply Government needs for goods and services.

Agencies must consult with voluntary consensus standards bodies, both domestic and international, and must participate with such bodies in the development of voluntary consensus standards when consultation and participation is in the public interest and is compatible with their missions, authorities, priorities, and budget resources.

C. Circular No. A-130

Circular No. A-130 provides uniform government-wide information resources management policies. This Circular establishes policy for the management of Federal information resources. Procedural and analytic guidelines for implementing specific aspects of these policies are provided, and these essentially mandate prudent and proper behavior in the acquisition, capturing, and generation of information of all types. The policies in the Circular apply to the information activities of all agencies of the executive branch of the Federal government.

The Paperwork Reduction Act establishes a broad mandate for agencies to perform their information resources management activities in an efficient, effective, and economical manner.

D. Executive Order 12906_Coordinating Geographic Data Acquisition And Access: The National Spatial Data Infrastructure

This Executive Order states that geographic data is critical to promote economic development, improve stewardship of natural resources, and protect the environment. Modern technology now permits improved acquisition, distribution, and utilization of geographic (or geospatial) data and mapping. The National Performance Review has recommended that the executive branch develop, in cooperation with State, local and tribal governments, and the private sector, a coordinated National Spatial Data Infrastructure (NSDI) to support public and private sector applications of geospatial data in such areas as transportation, community development, agriculture, emergency response, environmental management, and information technology.

The Executive order establishes a Federal Geographic Data Committee to undertake data standards activities, and to develop standards for implementing the NSDI, consistent with OMB Circular No. A-119. The Federal Geographic Data Committee (FGDC) is authorized under OMB Circular A16 to coordinate the development of geographic data standards within the U.S., engaging both federal and nonfederal participation. Standards

for spatial data exchange and documentation (metadata) have been developed and approved through the FGDC. The Federal Geographic Data Committee has Thematic Subcommittees that are defining information content for more than a dozen categories of spatial information

II. Description/Specifications/Statement of Work

1.General Complete geospatial data is defined as having all the parts spatial, attribute information and metadata. Depending upon the complexity/purpose content data will vary in importance. Obviously, spatial component is necessary by definition. The metadata component is mandatory regardless of purpose.

Example Language: The contractor will provide complete Geospatial data to include a spatial component, content information and metadata. This data shall be in compliance with EM-1110-1-1000 for Photogrammetric Mapping, EM-1110-1-1002 Survey Markers and Monumentation, EM-1110-1-1003 NAVSTAR Global Positioning System Surveying, EM-1110-1-1004 Deformation Monitoring and Control Surveying, EM-1110-1-1005 Topographic Surveying, EM-1110-2-1003 Hydrographic Surveying, EM-1110-1-2909 Geospatial Data and System, and Spatial Data Standards for Facilities, Infrastructure and Environment (SDS for FIE).

2. Content Obviously, if the contract is to procure imagery or elevation information content portion of the contract should reflect specifics on resolution of the data. If the contract is to collect feature data (building footprints, roads, etc), it needs to specify compliance with SDS for FIE.

A Data Content Standard provides semantic definitions for a set of real world geographic objects of significance to a community. This is often difficult to standardize because each community defines different significant objects. The Spatial Data Standards for Facility Infrastructure and Environment (SDS for FIE) provides a dictionary of standard feature and attribute definitions as well as a physical data model. The SDS for FIE is compliant with FGDC content standards.

Example Language: The contractor will provide data compliant with the Spatial Data Standards for Facility Infrastructure and Environment (SDS for FIE), formally the Tri-Service Spatial Data Standard (TSSDS). The SDS for FIE provides a physical data model for FGDC content standards.

1. Documentation/Metadata

Metadata or "data about data" describe the content, quality, condition, and other characteristics of data. The major uses of metadata are:

- To help organize and maintain an organization's internal investment in spatial data,
- To provide information about an organization's data holdings to data catalogues, clearinghouses, and brokerages, and

- To provide information to process and interpret data received through a transfer from an external source.

Generally, FGDC compliant metadata files need to be generated for “data sets”. It may be reasonable for a contractor to generate one metadata file for an entire data collection effort. If the collection is completed in a short time is uniform; such as with a small aerial photography effort, one metadata file can be generated that adequately describes the data. On the other hand, a large complex data collection effort over different geographic areas, probably needs multiple metadata files to adequately describe the data. The Government should work with the Contractor to determine a logical definition of “data set”.

Example Language: Any data, database(s) and/or information products (reports, etc.) produced through this procurement must be documented through the preparation of standard metadata (data about data) descriptions. Proposals shall clearly describe how this will be accomplished.

Example Language: The Recipient/Contractor shall ensure that the metadata delivered is compliant with the Federal Geographic Data Committee Standard "Content Standard for Digital Geospatial Metadata", FGDC-STD-001-1998. A free copy of FGDC-STD-001-1998 is available at <<http://www.fgdc.gov/metadata/contstan.html>>. {Note: Reference appropriate endorsed Metadata Profile Standard i.e. Biological Data Profile of the Content Standard for Digital Geospatial Metadata FGDC-STD-001.1-1999 in place of FGDC-STD-001-1998 when applicable}. The <Gov't> will provide the Recipient/Contractor with example metadata content text.

[Option 1] The <Gov't> requires that the Recipient/Contractor use Corpsmet95 for the collection/generation of the metadata. Corpsmet95 is available for download at <http://corpsgeol.usace.army.mil>.

[Option 2] Metadata received from the Recipient/Contractor must be able to be imported and processed by the (metadata-parser (mp) software (see web site <http://geology.usgs.gov/tools/metadata/tools/doc/mp.html> for a free copy of the mp software), or equivalent, free of errors.

3. Accuracy Accuracy is dependent upon the purpose and resolution of the data collection. FGDC has 5 parts to its accuracy standard. Which ever part of the standard is applicable the collection effort shall be referenced in the contract. All standards are available at <http://www.fgdc.gov>. *Geospatial Positioning Accuracy Standard, Part 4: Architecture, Engineering, Construction, and Facilities Management* is consistent with accuracy information described in EM 1110-1-2909.

Example Language: The Contractor will provide data consistent with FGDC:

Geospatial Positioning Accuracy Standard, Part 1, Reporting Methodology
FGDC-STD-007.1-1998

*Geospatial Positioning Accuracy Standard, Part 2, Geodetic Control Networks
FGDC-STD-007.2-1998*
*Geospatial Positioning Accuracy Standard, Part 3, National Spatial Data Accuracy
Standard FGDC-STD-007.3-1998*
*Geospatial Positioning Accuracy Standard, Part 4: Architecture, Engineering,
Construction, and Facilities Management (Draft Standard)*
*Geospatial Positioning Accuracy Standard, Part 5: Navigation Charts and Hydrographic
Surveys (Draft Standard)*

Accuracy statements reported by the Contractor shall be completely and thoroughly substantiated by Metadata. The National Standard for Spatial Data Accuracy provides guidelines in Section 3.2.3, Accuracy Reporting, for reporting positional accuracy in Metadata. The <Contractor> shall ensure that the metadata is compliant with the Federal Geographic Data Committee Standard Content Standard for Digital Geospatial Metadata, FGDC-STD-001-1998, which is downloadable from <http://www.fgdc.gov/metadata/constan.html>.

4. Transfer/Format Contract should indicate the format the data is to be delivered in consistent with local platform/software.

Example Language: All data provided by the contractor shall be in {DGN/ArcView} format.